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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,910	09/28/2005	Marco Bergemann	278178US0PCT	4573
22850	7590	11/13/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER PO, MING CHEUNG	
			ART UNIT	PAPER NUMBER
			1797	
			NOTIFICATION DATE	DELIVERY MODE
			11/13/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/550,910	Applicant(s) BERGEMANN ET AL.	
	Examiner MING CHEUNG PO	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/09/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Summary

1. This is the initial office action in response to application 10/550910 filed on 9/28/2005.
2. Claims 1 – 22 are pending and have been fully considered.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 17, 18, and 20 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility.

Claims 17, 18, and 20 are directed to neither a "process" or a "machine", but rather embraces or overlaps two different statutory classes of invention.

Claims 17, 18 and 20 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

It merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-2, 4-5, 7-14, 16- 18, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by KUMMER (U.S. 4,832,702) as evidenced by the present application.

Regarding claims 1 and 17, KUMMER teaches fuel and lubricant compositions that contain certain polyisobutylamines.

The present application teaches in lines 14 - 24 of page 20 that a known PIBA formulation or "old PIBA" has a **pour point of -30°C** which is less than -27°C.

Regarding claim 4, KUMMER teaches in lines 26 – 39 of column 4 that particularly suitable solvents are aliphatic, cycloaliphatic and aromatic hydrocarbons having a low sulfur content. A specific example is taught in example 1 in column 6 where dodecane is used as the solvent.

KUMMER teaches a compound with general formula I



where R1 is a polybutyl or polyisobutyl radical of 20 to 400 carbon atoms derived from isobutene and up to 20% by weight of n-butene and R₂ and R₃ are each identical

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or different and are each hydrogen, C₁-C₁₀ alkyl, phenyl, naphthyl, C₁-C₁₀-hydroxyalkyl or polybutyl or polyisobutyl, each 20 to 400 carbon atoms, a polyaminoalkylene radical of the general formula III.

Regarding claim 7 - 10, KUMMER teaches in reference claim 2 that the polybutyl or **polyisobutyl** radical of 32 to 200 carbon atoms is derived from **isobutene** and up to 20% by weight of **n-butene**. 32 to 200 carbon atoms translate to a range of at least 384 to 2400 mw which is from about 200 to 10,000. KUMMER specifically state in lines 33-34 of column 3 that the molecular weight of the polyisobutene may be from 300 to 2000.

Regarding claim 11, KUMMER teaches in lines 1 – 6 that a preferred embodiment would be one in which the polyisobutyl radical is derived from isobutene and up to 20 weight % of n-butene (**at least 85% by weight of isobutene units**) and R₂ and R₃ of formula I may be hydrogen (**polyisobuteneamine**).

Regarding claim 12, KUMMER teaches in lines 4 – 20 of column 6 that a polybutene (**polyalkene**) is aminated with 1l of ammonia (**amine**). Ammonia has the general formula HNR¹R² wherein R¹ and R² are both H.

Regarding claims 13, KUMMER teaches in lines 16 – 25 of column 4 that the compound of general formula I are prepared by hydroformylation of a polybutene or **polyisobutene** with a rhodium or cobalt catalyst in the presence of CO and H₂ and then subjecting the oxo product to a Mannich reaction or amination under hydrogenating conditions.

Regarding claim 14, KUMMER teaches that is is advantageous to use a suitable inert solvent in order to reduce the viscosity of the reaction mixture.

Regarding claim 15, KUMMER teaches in TABLE 1 of several conversions of PIBA that is more than 63 %, such as example 1 with a conversion of 81 %.

Regarding claims 16-17, KUMMER teaches in lines 35 – 43 of column 3 that in a fuel composition, the polybutyl or polyisobutylamine may be present, in particular 100 – 400 mg/kg of fuel.

Regarding claim 18, KUMMER teaches that the fuel or lubricant composition of the reference invention prevent the formation of deposits in the intake system of internal combustion engines in lines 25 – 38 of column 1.

Regarding claim 21, KUMMER teaches in EXAMPLE 1, 500 g of polybutene is mixed with 300 g of dodecane and 2.8 g of cobalt-octacarbonyl undergoes hydroformylated in an autoclave under a 1:1 CO/H₂ mixture. The resulting oxo product is then aminated with 1l of ammonia.

Regarding claim 22, KUMMER teaches in EXAMPLE 1, the dodecane is the solvent is **37.5% of the total weight of the solution**.

Regarding claim 5, dodecane is a **n-C₁₂ paraffin**.

8. Claims 1, 2, 9, 10, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by TANAKA (U.S. 6,281,173).

TANAKA teaches in lines 26 – 46 of column 2 that a two-stroke motorcycle lubricant comprising a base oil having a **pour point of below -39°C** and an ashless, oil-soluble amine as a detergent. The ashless-oil soluble amine is preferably a **polyisobutene-amine**. The base oil (**solvent**) is taught as a mineral oil derived from a naphthenic crude source or a polyalphaolefin. Examples of the naphthenic derived

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base oils are given in lines 25 – 39 of column 3.

Regarding claim 19, TANAKA teaches in lines 61 – 67 of column 2 and lines 1 – 11 of column 3 that a thickener may be added. The thickener may increase viscosity without a negative effect on smoke and deposit formation.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over KUMMER (U.S. 4,832,702) in view of KNOVEL CRITICAL TABLES.

The above discussion of KUMMER is incorporated herein by reference.

Although KUMMER teaches dodecane as a solvent, KUMMER does not seem to explicitly state the density or the viscosity of dodecane as according to ASTM D 4052 or ASTM D445)

However, Knovel Critical Tables lists the density as 0.753 g/cm³ at 25 ° C and the viscosity at 1.378 cP at 25°C.

There is no reason to believe that dodecane would not have a density in the range from about 50 to 900 kg/m³ at 15 °C and a viscosity that is from 1.0 to 5.0 mm²/s at 20°C.

It would be obvious to one of ordinary skill to use dodecane as the solvent.

The motivation to do so can be found in lines 26 - 39 of column 4. KUMMER

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teaches that it would be advantageous to use a inert solvent to reduce the viscosity of the reaction mixture and that particularly suitable solvents are aliphatic hydrocarbons having a low sulfur content. Aliphatic solvents free of sulfur compounds and contain less than 1% of aromatics are particularly preferred.

Therefore, the invention as a whole would have *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding claim 15, KUMMER teaches in example 1 from lines 4 – 17 of column 6 that 500g of polybutene is mixed with 300g of dodecane are hydroformulated with 2.8 g of cobalt-octacarbonyl and then aminated with ammonia, ethanol and 100 g of Raney cobalt. The catalyst is filtered off and the excess ammonia is evaporated, leaving PIBA and solvent. The polybutene is responsible for the PIBA product and is 62.5 % of the formulation with the solvent dodecane as the other 37.5 %.

11. Claims 5, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over KUMMER (U.S. 4,832,702) in view of ROPER (U.S. 6,099,602).

The above discussion of KUMMER is incorporated herein by reference.

Regarding claims 5 and 19, although KUMMER teaches a C₁₂ paraffin, KUMMER does not seem to explicitly disclose a solvent that is a mixture from the group consisting of at least one n- or iso- C₁₀-C₁₄ paraffin, S2) at least one C₁₀-C₁₄ naphthene and mixtures thereof.

However, ROPER teaches a fuel or lubricant composition that contains polyisobutene amines. The synthesis is taught in lines 3 - 20 of column 4. The solvent used is 300g of Mlhagol M (C₁₂-C₁₄ **paraffins** and 102g of and aqueous, 25% strength

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NH₃ solution.

It would be obvious to one of ordinary skill in the art to use the Mihagol M that ROPER teaches as the solvent in the composition that KUMMER teaches.

The motivation to do so can be found in lines 40 – 45 of column 3 in ROPER. ROPER states that to improve handling of the polyolefins the reaction may be carried out in suitable, inert solvents.

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention.

Regarding claim 19, KUMMER does not seem to explicitly disclose an additive package that comprises a formulation according to present claim 1, in combination with at least one further coadditive.

However, ROPER teaches in lines 28 - 39 of column 3 of performing the reaction in the presence of further **additives**. A number of compounds are then listed.

It would be obvious to one of ordinary skill in the art to add the compounds that ROPER teaches as additives in the composition that KUMMER teaches.

The motivation to do so can be found in lines 29 – 30 of column 3 of ROPER. ROPER states that the additives would have a minor significance in the success of the reaction.

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over KUMMER (U.S. 4,832,702) in view of ROPER (U.S. 6,099,602). And TANAKA (U.S. 6,281,173).

The above discussion of KUMMER in view of ROPER as applied to claims 5, 9, and 20 are incorporated herein by reference.

Modified KUMMER teaches a composition with polyisobutene amines and a solvent **Mihagol M** (C₁₀ - C₁₄ paraffin) with a pour point of less than -0.30°C.

KUMMER does not seem to explicitly state at least one **C₁₀ – C₁₄ naphthene**.

However, TANAKA teaches in lines 26 – 46 of column 2 that **a naphthenic derived base oil** may be used as the base oil of detergents such as polyisobutene amines with a **pour point of less than -39°C**. Examples of the naphthenic derived base oils are given in lines 25 – 39 of column 3.

It would be obvious to one of ordinary skill in the art to some naphthenic derived base oil with C₁₀ – C₁₄ with the C₁₀ – C₁₄ paraffin that ROPER teaches in different ratios with a reasonable expectation of success.

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MING CHEUNG PO whose telephone number is (571)270-5552. The examiner can normally be reached on 9:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571)272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ming Cheung Po

Patent Examiner

AU:1797

//Cephia D. Toomer//

Primary Examiner, Art Unit 1797